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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,542	09/02/2003	Bulent M. Basol	NVLUS.013C1	3972
20995 7590 04/19/2007 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER MORGAN, EILEEN P	
			ART UNIT 3723	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		04/19/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 04/19/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
eOAPilot@kmob.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/654,542	BASOL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eileen P. Morgan	3723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 14-21,25-27 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al.-6,857,945.

Chen discloses a carrier head and method of polishing a wafer with a carrier head comprising a carrier housing (102), a base (104) for holding workpiece and movable with respect to housing, a pressure member (108) between the base (104) and housing (102) for applying a predetermined pressure (capable of being constant) to wafer against the process surface of a polishing pad, wherein the pressure member is a compressed fluid controlled by a pneumatic system (122), wherein the housing includes a cavity (120) and the base includes a shaft (136) configured to slide within the cavity, wherein the pressure member attaches the base and the carrier housing via flexible diaphragm (126), wherein the housing includes a stop member (lower shoulder of 122) and the shaft includes a limiting member (138) to mate with stop member to limit travel, wherei the pressure member is controlled for applying any desired pressure to wafer against the pad.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,3-7, 10-13, 24 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen, alone.

Chen discloses a carrier head and method of polishing a wafer with a carrier head comprising a carrier housing (102), a base (104) for holding workpiece and movable with respect to housing, a pressure member (108) between the base (104) and housing (102) for applying a predetermined pressure (capable of being constant) to wafer against the process surface of a polishing pad, wherein the pressure member is a compressed fluid controlled by a pneumatic system (122), wherein the housing includes a cavity (120) and the base includes a shaft (136) configured to slide within the cavity, wherein the pressure member attaches the base and the carrier housing via flexible diaphragm (126), wherein the housing includes a stop member (lower shoulder of 122) and the shaft includes a limiting member (138) to mate with stop member to limit travel, wherein the pressure member is controlled for applying any desired pressure to wafer against the pad. Chen does not disclose the polishing pad having a spring constant greater than the pressure member. However, the spring constant of the pad would have been an obvious design choice dependent on machining parameters and desired process of wafer. The spring constant is the measure of flexibility or stiffness. The

choice of this measurement would be within the level of ordinary skill in the art dependent on force desired of workpiece against pad to process wafer. In addition, it would be within the level of ordinary skill in the art to have a process surface with a higher spring constant than the pressure member in order to counter the pressure member with ample force in order to properly process wafer.

Claim 2, 22,23 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Kajiwara et al.-2002/0115397.

Chen, alone teaches the claimed invention, as detailed above, but does not disclose using a spring as a pressure member. However, Kajiwara teaches a polishing device having a wafer carrier head for applying force to the wafer against a polishing pad wherein the force is applied via a spring (232,238) or via pneumatic pressure [0080]. Kajiwara teaches that pressure can be applied to the backside of a wafer for polishing by either a spring or pneumatic pressure, which he deem as functional equivalents. Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to substitute the pneumatic pressure of Chen for force springs, as taught by Kajiwara, since these are well known functional equivalents and the choice of either would be within the level of one having ordinary skill.

Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Shendon-2001/0044268.

Chen, alone teaches the claimed invention, as detailed above, but does not disclose the cavity having bearings for the shaft. However, Shendon teaches a carrier head for polishing a wafer with a polishing pad wherein the carrier head has a cavity with a shaft

(64) and bearings (77) for shaft to rotate within cavity. Therefore, it would have been obvious to one of ordinary skill in the art at time invention was made to provide Chen with bearings in the cavity in order to enhance shaft rotation within cavity by reducing friction.

### ***Response to Arguments***

Applicant's arguments filed 1-31-07 have been fully considered but they are not persuasive.

The 112 rejections have been overcome by amendment. On page 7, Applicant states that Chen nor the other references discuss the process surface having a greater spring constant than the pressure member. This is true, as pointed out by Examiner. However, Examiner states that it would be within the level of ordinary skill in the art to have a process surface with a higher spring constant than the pressure member in order to counter the pressure member with ample force in order to properly process wafer. Without a proper counter force, which would be determined by the spring constant, the wafer could not be processed. The carrier of Chen is capable of pressing wafer with a constant force. Col. 4, lines 44-46 state that the 'force applied on the substrate can be independently controlled'. Therefore, it can be controlled to be constant. Because Chen might apply different pressures at different locations of substrate does not mean these different pressures are not constant. These pressures are controlled and therefore are capable of being constant.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eileen P. Morgan whose telephone number is 571.272.4488. The examiner can normally be reached on Monday-Thursday, 7am-3:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571.272.4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3723

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EM  
April 5, 2007



Eileen P. Morgan  
Primary Examiner